WE CLAIM:

1. A method of paging mobile hosts over an Internet protocol (IP) network, comprising:

coupling base stations to the IP network wherein one or more base stations define associated paging areas;

initiating a page request for a mobile host at a given node of the network when data on the network is addressed to the host and the host is in a standby state in which the host informs nodes of the network only when a new point of attachment with the network is a base station of a paging area different from a paging area of a last point of attachment with the network;

delivering the page request to the mobile host by directing the request to one or more base stations within a current paging area for the host, and transmitting the request from one or more base stations in the current paging area;

receiving a page response from the mobile host at a base station in the current paging area in response to the transmitted page request;

developing updated routing information for the mobile host from the page response; and

delivering the data addressed to the mobile host according to the updated routing information developed for the

host when the host transitions to an active state.

2. The method of claim 1, including receiving the data addressed to the mobile host at a home agent on the network, initiating the page request from the home agent, and directing the page request from the home agent to at least one of the base stations in the paging area for mobile host.

3. The method of claim 2, including directing information to the home agent concerning a current location of the mobile host from a base station that receives the page response from the mobile host.

4. The method of claim 2, including buffering the data addressed to the mobile host at the home agent when the host is in the standby state.

5. The method of claim 4. including delivering the data buffered at the home agent to the mobile host when the host transitions to the active state.

6. The method of claim 5, including delivering data later received at the home agent and destined to the mobile host, to the mobile host while the host is in the active state.

7. The method of claim 2, including directing the page

request from the home agent to the base stations according to a selected one of a fixed paging algorithm, a hierarchical paging algorithm, or a last-location paging algorithm.

8. A method according to claim 1, including receiving data addressed to the mobile host at a home agent on the network, and tunneling the data from the home agent to a designated foreign agent on the network.

9. The method of claim 8, including designating a last serving base station in the paging area for the mobile host as a last foreign agent, and buffering the tunneled data from the home agent at the last foreign agent.

10. The method of claim 9, including initiating the page request from the last foreign agent, and directing the page request to at least one of the base stations in the paging area.

11. The method of claim 10, including transmitting to the home agent a current location of the mobile host from a base station that receives the page response from the host, and designating the base station that receives the page response as a current foreign agent.

12. The method of claim 11, including delivering the data buffered at the last foreign agent to the mobile host through the current foreign agent, when the mobile host

transitions to the active state.

13. The method of claim 10, including directing the page request from the last foreign agent to the base stations according to a selected one of a fixed paging algorithm, a hierarchical paging algorithm, or a last-location paging algorithm.

14. A method according to claim 1, including receiving the data addressed to the mobile host at a home agent on the network, defining a domain root router along a path on the network between the home agent and the current paging area for the mobile host, and sending update messages to the domain root router from the mobile host (i) when the host detaches from one base station and re-attaches to another base station while the host is in the active state, and (ii) only when the host re-attaches to a base station outside the current paging area while the host is in the standby state, thereby developing routing information concerning the mobile host at each node in a path between a last-serving base station for the mobile host and the domain root router.

15. The method of claim 14, including periodically advertising the identity of the domain root router in all paging areas of an associated domain.

16. The method of claim 14, including initiating the page request from a page initiator comprising a router or a base

station along a path between the domain root router and the last-serving base station in the paging area for the mobile host.

17. The method of claim 16, including buffering data addressed to the mobile host at the page initiator when the host is in the standby state.

18. The method of claim 16, including sending the page response from the mobile host to the page initiator thereby updating the routing information concerning the mobile host.

19. The method of claim 18, including delivering the data buffered at the page initiator to the mobile host when the host transitions to the active state, according to the updated routing information.

20. The method of claim 16, including directing the page request from the page initiator to the base stations according to a selected one of a fixed paging algorithm, a hierarchical paging algorithm, or a last-location paging algorithm.

21. A method of operating a mobile host for linking with an Internet protocol (IP) network, comprising:

configuring the mobile host for assuming a selected one of an active state and a standby state;

informing certain nodes of the network of a change of the host's point of attachment with the network from one base station to another base station when the host is in the active state, wherein the network has paging areas each of which includes one or more base stations;

informing the nodes only when a new point of attachment with the network is a base station of a paging area different from a paging area of a last point of attachment with the network, when the host is in the standby state;

responding to a page request received from one or more base stations of a current paging area when in the standby state, by transmitting a page response for reception by one of the base stations and transitioning to the active state; and

receiving data from one of the base stations which data was addressed to the mobile host while the host was in the standby state.

22. The method of claim 21, including conserving battery power at the mobile host when the host is in the standby state.

23. The method of claim 21, including transitioning from the active state to the standby state after a determined time out interval in the absence of data exchanged between the mobile host and the network.

24. A method of paging mobile hosts associated with an Internet protocol (IP) network, comprising:

coupling base stations to the IP network to define paging areas each of which has one or more associated base stations;

configuring at least one mobile host for assuming a selected one of (i) an active state wherein the mobile host operates to inform certain nodes of the network of a change of the host's point of attachment with the network from one base station to another base station, and (ii) a standby state wherein the mobile host informs the nodes only when a new point of attachment with the network is a base station of a paging area different from a paging area of a last point of attachment with the network;

initiating a page request for the mobile host at a given node of the network when data on the network is addressed to the host and the host is in the standby state;

delivering the page request to the mobile host by directing the request to one or more base stations within a current paging area for the host, and transmitting the request from one or more base stations in the current paging area;

configuring the mobile host to respond to the page request when in the standby state by transmitting a page response for reception by a base station in the paging area;

developing updated routing information for the mobile host from the page response transmitted by the host; and

delivering the data addressed to the mobile host according to the updated routing information developed for the host.

25. The method of claim 24, including receiving the data addressed to the mobile host at a home agent on the network, initiating the page request from the home agent, and directing the page request from the home agent to at least one of the base stations in the paging area for mobile host.

26. The method of claim 24, including receiving data addressed to the mobile host at a home agent on the network, and tunneling the data from the home agent to a designated foreign agent on the network.

27. The method of claim 24, including receiving the data addressed to the mobile host at a home agent on the network, defining a domain root router along a path on the network between the home agent and the current paging area for the mobile host, and sending update messages to the domain root router from the mobile host (i) when the host detaches from one base station and re-attaches to another base station while the host is in the active state, and (ii) only when the host re-attaches to a base station outside the current paging area while the host is in the standby state, thereby developing routing information concerning the mobile host at each node in a path between a last-serving base station for the mobile host and the domain root router.